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15 December 1955

## MEMORANDUM FOR THE RECORD

SUBJECT: Visit to [REDACTED], Plant

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1. On 16 November 1955, [REDACTED] Chief, RSS, and [REDACTED] RSS Project Engineer, visited the [REDACTED] factory in Miami, Florida. The purpose of the visit was to inspect base station transmitter equipment manufactured by that firm, and to get some idea of the production capabilities of the plant in the event an invitation to bid on a contract is extended to this firm in the future. The following [REDACTED] people were met and consulted:

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[REDACTED] Ident

[REDACTED] Asst. Chief Engineer  
[REDACTED] Engineer

2. The plant, including offices, is housed within an area approximately 60 X 200 feet. It employs between 50 and 70 people. Aside from assembly, it has facilities for metal working, welding, etching, packaging and crating. Parts peculiar to [REDACTED] equipment may also be fabricated, such as terminal boards, cabinets, etc. JAN packing is not ordinarily done, but can be accomplished when necessary.

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3. Two types of transmitters were inspected. One was a 350 watt A1/A3 four-channel type, [REDACTED] Model 446; the other was a 1 kw. A1/A3 four-channel type, [REDACTED] Model 1046. Both transmitters are similar in many respects with regard to circuits and tuning procedures, however parts in similar circuits are not all interchangeable. Both transmitters feature a channel selection switch on the RF panel which when operated activates ganged motor-driven switches to select one of four pre-tuned oscillator, buffer and power amplifier circuits. The 350 watt Transmitter is protected from overloads by means of fuses alone, six in all, while the 1 kw. Transmitter employs circuit-breaker switches. Both units must be operated from a 200-250 V. single phase, 50-60 cycle source. Remote control units are available which offer dial control of the Transmitter primary power (or alternatively, the p.a. plate voltage), and frequency selection, from the operators position. Using the remote units frequency selection, power control, voice input and keying are accomplished using a single pair of wires, Remote frequency selection is also possible without the use of the remote units using a remote switch and cable assembly at the operators position which parallels the frequency selection switch on the Transmitter. Two types of RF output connections are available on the Transmitters, accommodating coaxial cables through SO-239 type receptacles, or Marconi type antennas through standard feed-thru insulators. Spare parts for these two transmitters are broken into two categories referred to as "major" and "minor" spares. The major spares include capacitors (above 1500 V. rating) meters, fan, transformers, chokes, relay, channel and power switches; the minor spares consist of small parts such as capacitors (below 1500 V. rating) resistors, r.f. chokes, insulators, sockets, small switches, terminal boards and strips, coils, knobs, gears and air filters (for 1 kw. unit). The 350 watt Transmitter has a set of "expendable spare parts" consisting of air filters and fuses. A set of tubes, fuses (where needed), and plug-in relays accompany each unit. An antenna matching network, 72 ohm unbalanced to 500/600 ohm balanced [REDACTED] Model TLM) is available, but not included as part of

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either Transmitter. Provisions are made on each Transmitter for connection of external excitation on two of the channels. [REDACTED] indicated that it is planned to provide input connections for external excitation on all four channels.

4. Details of the 350 Watt (Mod. 446) and 1000 Watt (Mod. 1046) Transmitters:

Frequency Range: 2-24 Mcs.

Type of Emission: A-1 and A-3

Power Input: Mod. 446 2 KVA (Max.), 200-250 V., 1 Phase, 50-60 cycles  
Mod. 1046 3.7 KVA (Max.), 200-250 V., 1 Phase, 50-60 cycles

Size: Model 446 - Transmitter is made up in three sections, RF, Modulator and Power Supply, mounted in a cabinet 22 1/2 in. wide X 67 3/8 in. high. Panels are 19 in. wide.

Model 1046 - Transmitter with Modulator, is contained in two cabinets 22 1/2 in. wide X 67 3/8 in. high. One cabinet contains the RF Section and its Power Supply; the other cabinet contains the Transmitter Remote Control Unit, the Modulator, and its Power Supply

Channels: 4 (separate, pre-tuned)

Frequencies Accommodated: Six, 2 of which must be within prescribed proximity of two of the four pre-tuned channel frequencies.

Channel Selection: Automatic. Locally by means of a selector switch controlling motor-operated switches for each channel; remotely, either by a dial control on remote control unit, or by a parallel selector switch at remote locations.

RF Output Impedance: 70-1000 ohms, unbalanced, using pi-network.

Audio Input: 20 db below 6 mw for 1.5 db below 100% modulation.

Audio Input Impedance: 500/600 ohms, single-button carbon microphone input.

Tubes: Model 446

<u>RF Section</u>	<u>Power Section</u>	<u>Modulation Section</u>
1 - 5654 (or 6AK5)	1 - 5U4G	4 - 6SG7
1 - 6146	2 - 866A (or 3B25 or 3B28)	2 - 828
2 - 4-125A	2 - 866A (or 3B28)	1 - 6H6

Model 1046

<u>RF Section</u>	<u>Power Section</u>	<u>Modulation Section</u>
1 - 5654 (or 6AK5)	1 - 5U4G	4 - 6SG7
1 - 6146	2 - 866A (or 3B25 or 3B28)	2 - 4-250A
	4 - 866A (or 3B28)	1 - 6X5GT

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5. Both transmitters were inspected physically and operationally. The Model 446 is tuned in the conventional manner up to the Power Amplifier output tuning; at this point, when the plate tank circuit is tuned, a screen current meter is used as a tuning indicator. The "PA PLATE" meter is in the PA cathode circuit. Since each channel will cover the entire frequency range of the transmitter, 2-24 mc., it is necessary to use jumpers and taps on the tuned circuits; these taps and jumpers must be set by hand with the aid of a screwdriver. A keying test was given the Model 446 unit by means of a keying relay operated from the output of an audio frequency signal generator; the keying waveshape was observed on an oscilloscope and was generally satisfactory within the stated keying speed range of the transmitter, 40 wpm.

6. Instruction manuals and price lists for the transmitters and associated equipment inspected were obtained. The price of the Model 446 Transmitter is \$2810.00, the Model 1046 is priced at \$2970.00, less Modulator. The GM-8A Modulator for the Model 1046 Transmitter is priced at \$1420.25. The TMC-RS Remote Control Panels are priced at \$260.00 each.



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